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PARENTS AND THE ERADICATION OF DIPHTHERIA

Children need not be infected and practically none need die from diphtheria. This conclusion is well established by modern medical practice. Yet this disease still takes a yearly toll of ten thousand children in the United States. This will cease when all parents realize the value of immunizing their children and provide this simple protection for them.

The cooperation of parents is absolutely essential for the control of diphtheria. It is on them that the responsibility for the immunization of their children rests. A survey recently made by the Metropolitan Life Insurance Company demonstrates this conclusion. A total of 178 replies was received from physicians throughout the United States and Canada who, during the early part of this year, treated fatal cases of diphtheria among insured children and the facts disclosed are presented here.

In not a single case was the accepted procedure for the immunization of the children followed. There were, to be sure, a few cases in which three injections of the toxin-antitoxin or toxoid were made, but in not one of them had the Schick test for confirming the immunity been subsequently given. Clearly this group of children did not receive the benefits of the full preventive treatment.

It is true that in the great majority of the cases, 93 per cent., antitoxin was used in the treatment and usually in sufficient quantity. In only twelve of these fatal cases was it not used at all. But in most cases where antitoxin was given, the injections were made far too late in the course of the disease to be of benefit. In the great majority of cases, the doctor was not called in until the fourth day or later. As time is inevitably lost in making a diagnosis, the administration of antitoxin was made obviously too late in these cases to be of use. In a few cases the number of units of antitoxin was insufficient or given in two or more doses. The evidence is very clear that better success

would have been obtained if the physicians had administered antitoxin in these cases in one large dose rather than in several smaller doses. In this respect, it would be well to urge the adoption of larger unit-packages on municipal health authorities. The delay in calling in medical aid, however, is the chief cause of the fatality, and this is chargeable to parental ignorance or neglect.

Until voluntary immunization becomes a common practice, some means must be found to educate parents in the signs of diphtheria and in the necessity for early medical care in this disease. But the main hope of diphtheria eradication is in immunizing children, and if it cannot be made compulsory, efforts to preach its necessity to parents must be strenuous and unrelenting. In this program, the medical profession, the schools, health agencies and the life insurance companies must continue their contribution.

TUBERCULOSIS IN 1928

The two earliest reports concerning the tuberculosis deathrate in 1928 seem, at first blush, to be conflicting. According to a survey recently completed for the NATIONAL TUBERCULOSIS ASSOCIATION "no headway was made against tuberculosis in large American cities in 1928." The survey discloses that in thirty-eight major cities, with a population exceeding 28,000,000, there were, in 1928, 24,471 deaths from tuberculosis, or 430 more than in 1927. The mortality rate (87.4 per 100,000) remained the same for both years. But, according to an announcement by the Metropolitan Life Insurance Company in its January, 1929, STATISTICAL BULLETIN, the tuberculosis deathrate among its more than 18,500,000 Industrial policyholders declined, in 1928, to a new low point, with a drop of 4.1 per cent. from the former minimum established only in the preceding year. It is significant that in the very thirty-eight cities surveyed for the NATIONAL TUBERCULOSIS ASSOCIATION, Metropolitan Industrial policyholders comprise about one-third of the population. The insured are wage-earners, their wives and children. The obvious conclusion is that even if no improvement took place among the *entire* population, there was, nevertheless, continued improvement among these industrial wage-earners.

The long-time trend of the tuberculosis deathrate has been downward—both in the general and the wage-earning populations. When the final returns are in for 1928, it will probably be found that there was no break in the downward course of the deathrate. However that may be, the Metropolitan's findings are good evidence that the

chief factor in the rapid elimination of tuberculosis, as an important item in American mortality statistics, is still operative; that is, the great reduction in the very economic stratum where the tuberculosis situation has always been the most acute, is still going on.

Since the anti-tuberculosis movement was launched in America, the Metropolitan Life Insurance Company has cooperated actively and whole-heartedly in the campaign for the instruction of its policyholders. Those insured in its Industrial Department have always been, in large part, dwellers in the more congested districts of American cities. They have suffered especially high deathrates from tuberculosis. The Company realized that thousands were dying from this cause, every year, whose deaths could be prevented—or whose lives, at least, could be prolonged. Consequently, in the Company's program of health education, special emphasis was placed on tuberculosis. The result has been a most remarkable decline in the deathrate—a decline which has far outstripped that in the general population, and which extended into 1928, resulting in a new minimal deathrate for that year, sixty-one per cent. lower than that for 1911, and 34.7 per cent. below that for 1920.

These two earliest reports, then, are not incompatible, the one with the other. Even if that for the general population proves to be truly prophetic, and "no headway was made" last year, we are, nevertheless, impressed with the continued decline among, and the new minimum for, these insured wage-earners. In 1911, the latter suffered a tuberculosis deathrate, 42.5 per cent. in excess of that for the general population. By 1927 this excess had been reduced to 16.8 per cent. This margin was probably narrower in 1928, and present indications are that it will be wiped out in the near future. Tuberculosis is no longer the chief burden upon the vital resources of American wage-earners and their families. The campaign against it is meeting such a great measure of success that even within the next two decades it is possible that tuberculosis will be relegated to the rôle of a minor cause of death.

INSULIN AND DIABETES

The deathrate from diabetes in the first three months of 1929 (23.8 per 100,000) was the highest ever recorded among the Industrial policyholders of the Company. The large increase in the deathrate from this cause this year was due, in part, to the wide prevalence of influenza and pneumonia, which hastened the deaths of a number of diabetics. An increase in the deathrate from diabetes during such epi-

demics is expected, because infections of all types are dangerous to diabetics, and particularly generalized infections such as influenza. But, apart from such deaths, there has been a large increase in the diabetic mortality; and during the months of March and April, with the influenza epidemic rapidly waning, the diabetes deathrate exceeded the high figures recorded for these months in 1928.

The rise in the deathrate from this disease, so soon after the discovery of insulin, has been very disconcerting to physicians and public health workers, who know how valuable this treatment is. It is hoped that this announcement of the bare facts concerning the rising mortality from diabetes will not again evoke the misinterpretations which certain individuals, and a few newspapers, made of a statement published in the STATISTICAL BULLETIN of May, 1927. That statement, in effect, was that, despite the general and increasing use of insulin, the diabetes deathrate had increased. In some quarters, the inference was drawn, and published, that the Metropolitan considered the insulin treatment useless. Despite the fact that the diabetes deathrate did increase in 1927, showed a further rise in 1928, and bids fair to reach, in 1929, the highest figure ever recorded, it is our definite judgment that, but for the increasing use of insulin, the deathrate would be much higher. It has been demonstrated that insulin has been a great benefit in prolonging the life of young diabetics. Older patients, formerly kept on starvation diets, and living closely restricted lives, are able to resume their former activities. Coma is preventable and curable by insulin; and the treatment, under expert care, helps diabetics through infectious diseases and surgical operations. But the course of the diabetes deathrate among insured males leaves no room for doubt that between forty-five and sixty-five years there has been no important change, and that, after age sixty-five, there has been a distinct and significant rise. For females, the only ages showing a decline have been those of childhood and early adult life. From thirty-five to forty-five years, there has been a slight rising tendency; and the deathrate among female diabetics after fifty-five has risen sharply.

It is our best judgment that diabetes is on the increase, in spite of the use of insulin, because of the dietary excesses practiced by the American people. Insulin cannot control the diabetes incidence, because its use is not preventive. It is also true that more and more cases are being uncovered because of the more general use of routine urinalysis in life insurance medical examinations and by physicians; also through periodic health examinations.

The increasing use of insulin is borne out by information from physicians regarding its use in fatal cases on which the Metropolitan has paid claims during the early part of 1929. Up to April 15th, data were available on 1,044 deaths. In 664 cases, or 63 per cent., insulin was administered. In a similar survey in 1924-5, only 881 out of 1,800 cases, or 49 per cent., were given insulin. Of the 664 cases, 46 per cent. were given the treatment only during the last month before death, compared with 55 per cent. in 1924-5. Those beginning insulin a month or more before death were 54 per cent. of all cases in 1929, compared with only 45 per cent. in the earlier period. Furthermore, in 1924-1925, only 7 per cent. of the cases had begun insulin treatment a year or more before death, as compared with nearly 30 per cent. in 1929. In 1929, 12 per cent. had been treated for three years or more before death.

Except at the younger ages, the percentage of these fatal cases treated with insulin was higher in 1929 than in 1925. Between the ages of 15 to 44, the percentage treated in the present series was 84, as compared with 71 in the earlier series; at ages 45 to 64, 66 per cent., against 52 in the earlier series; and at 65 years and over, 49 per cent. in 1929, as compared with 32 per cent. in 1924-1925. At ages under 15, there was no distinct difference between the two series, the percentage treated in each being approximately 70 per cent. The number of cases at these younger ages is, relatively, much smaller in the present than in the earlier study.

An encouraging result of the increasing use of insulin is the decline in the incidence of deaths from coma. Coma was present, in 1929, in 433 or 41 per cent. out of the 1,044 cases. In the earlier series, 48 per cent. died in coma. The improvement seems to be slight; but it must be remembered that the returns in the present series were gathered in a period of high deathrates from influenza and pneumonia, and many of the deaths in which there was sudden and fatal onset of coma, were caused by acute attacks of these diseases. Seventy-three per cent. of the coma cases received insulin during 1929, compared with less than 60 per cent. in the earlier series. One-fourth of those not receiving insulin during coma had had insulin during the course of the disease.

The reasons why insulin was not given to 111 patients who died in coma are of interest. In 21 of these cases, the failure was due to objection, either on the part of the patient or the family. All of these patients were 45 years of age or over. In 15 cases, the doctor reported that he had been "called in too late" for even insulin to be efficacious.

In 17 others, there was an acute attack of influenza or pneumonia.

Strangely enough, another index of the improvement in the treatment of diabetics, with insulin, is the more frequent occurrence, along with diabetes, of heart, kidney, and circulatory diseases, as well as gangrene, all of which occur chiefly after age sixty; for this shows that more and more diabetics are living to advanced ages. The doctors reported evidence of these degenerative conditions in over 60 per cent. of the 985 cases in which diabetes was the primary cause of death. Out of the 569 such cases in which coma was absent, no less than 416, or 73 per cent., showed evidence of these degenerative diseases. Even of 416 cases who died in coma, 193, or 47 per cent., had cardiac, renal or arterial changes.

As we have already noted, the incidence of influenza and pneumonia among diabetics in the present series is very high because of the epidemic in the early part of the year. There were 99 cases of influenza and 132 of pneumonia.

These findings are wholly preliminary. The Metropolitan will continue collecting reports from physicians throughout 1929. Early next year we will publish a statement of the facts of insulin treatment, covering the returns for the whole of 1929. The present study is part of a series about diabetes and insulin treatment which the Company is undertaking. Another investigation of great value is a follow-up of cases treated by one of the foremost specialists in this country in the treatment of diabetes. The interest of the Company in present aspects of diabetes mortality and treatment is due to the fact that this is one of the few diseases which, among older people, may be prevented by popular education, or, if incurred, can be successfully treated. Middle-aged diabetics can live out their normal expectation of life; and this is hardly true of any other degenerative condition developing in middle life. Moreover, diabetic coma is not only preventable, but, save in the late stages, is curable.

MORE FACTS FOR THE PREVENTION OF ACCIDENTS

Approximately ninety-six thousand deaths from accidents occurred in the United States during 1928. Until recently, there was little information available on the circumstances surrounding these fatalities. Our official vital statistics recorded these deaths under broad headings which served to indicate, in most cases, only the means of injury. They have been useful only in pointing out the very broadest elements of the accident problem in the United States. They did not serve the purposes of the modern safety movement, which is to conserve life and limb by reducing preventable accidents.

Through the activity of the NATIONAL SAFETY COUNCIL a number of registrars of vital statistics of our states were recently interested in securing the type of information needed to indicate the origins of accidents. Beginning with January 1, 1929, four states commenced, for each accidental death reported, to secure facts on the place where the accident occurred, the class or kind of accident according to the hazard involved, *i.e.*, whether the accident occurred in the home, in a work place, or in a public place. For accident fatalities arising in public places, it is further designed to secure facts on vehicular accidents separately from those not involving vehicles. A special form has been drafted by the NATIONAL SAFETY COUNCIL for this purpose. The facts on this supplementary accident report form are such that they can be gathered readily at the time the standard certificate of death is filed with the local registrar.

For home accidents, the form provides not only for a statement of the means of injury, but for a description of circumstances contributing to the accident. For industrial or occupational fatalities, the means of injury and a description of the facts leading to the accident are asked for. Concerning vehicular accidents, in the public accident group, statements are requested as to whether a pedestrian, passenger or driver was killed, whether the accident involved another vehicle, and likewise, as to *how* the accident happened. The public accidents not involving a vehicle, those occurring on streets or sidewalks, in buildings and structures, through drowning, fire arms, sports and recreation may also be described on this form.

When this information is collected for each accident fatality it will be possible to show which accidents arise out of hazards inherent in domestic life, what part of the total accident toll is due to occupational or industrial conditions, and the rôle which is played by hazards on our streets, highways and other places for the accommodation of the general public. It is only through the detailed analysis of the hazard factors contributing to our national accident toll that effective remedial measures can be taken. It is hoped that State Registrars will take an active interest in this widening movement for studying the facts of hazards leading to fatal accidents. Accidental deaths can be prevented only when it is known when, where and under what circumstances they occur.

The form recommended jointly by the NATIONAL SAFETY COUNCIL and by the AMERICAN PUBLIC HEALTH ASSOCIATION Committees is shown on page 8. Copies of *Public Accident Reporting*, a pamphlet, describing contemporary accident reporting systems in the United

States, may be obtained from the PUBLIC SAFETY DIVISION of the NATIONAL SAFETY COUNCIL, 108 East Ohio Street, Chicago, Illinois.

Supplementary Accident Reporting Form for Health Departments.

(The actual size of this form is 8½x11 inches.)

National Safety Council, 1929

REPORT OF FATAL ACCIDENT

Bureau of Vital Statistics

A separate report on this form must be made for each accidental death.

Case No.

Person making this report:

Name ..... Address .....

GENERAL INFORMATION

(Give this information for all classes of accidents.)

1. Place of Accident:
   County .....
   City or Village .....
   Township .....
   Exact location .....
   (Street address, R. R. crossing, highway number, farm, etc.)
2. Name of person killed .....
   Home address .....
3. Sex ..... Age ..... Color .....

4. Class or Kind of Accident .....
   (I. Home; II. Industrial; III. Vehicular; or IV. Other Public.)
5. Date of Accident ..... Time of Day ..... A. M. P. M.
6. Results of Accident:
   Was person killed instantly? .....
   If not, give date and place of death .....
   Give nature of injury causing death .....
   (Fractures, cuts, etc.)
   Number of dependents:
   1. Children under 16 ....., 2. Wife .....
   3. Others .....

In item 4, above, you have indicated the classification in which this accident belongs. Select the section below corresponding to this classification, check what caused the injury, and describe.

I. HOME ACCIDENT

	Check		Check
1. Fall		5. Poison	
2. Burning building		6. Cut or scratch	
3. Burn, scald or explosion		7. Other	
4. Asphyxiation or suffocation			

How did accident happen? .....

II. INDUSTRIAL ACCIDENT

	Check		Check
1. Machinery		6. Stepping on or striking against objects	
2. Vehicles (not including construction of)		7. Falling objects (not being handled by injured)	
3. Explosions, electricity, fires and hot substances		8. Handling of objects	
4. Poisonous and corrosive substances and occupational diseases		9. Hand tools	
5. Falls of persons		10. Animals	
		11. All other and unknown causes	

How did accident happen? .....

III. VEHICULAR ACCIDENT

Was person killed a pedestrian, passenger or driver? .....

Vehicle 1 or 2 — **Vehicles Involved**

Kind of vehicle ..... Driven by .....
Address ..... Age ..... Sex ..... Color .....

Accident Also Involved: Pedestrian ☐ Railroad Train ☐ Bicycle ☐ Animal ☐ Non-Collision Operating ☐
(Check X which) Other Motor V ☐ Electric Car ☐ Horse Drn. Veh. ☐ Fixed Object ☐ Non-Operating ☐

IF ANOTHER VEHICLE WAS INVOLVED, GIVE FOLLOWING INFORMATION FOR VEHICLE 2:

Vehicle 2

Kind of vehicle ..... Driven by .....
Address ..... Age ..... Sex ..... Color .....

How did accident happen? .....

IV. PUBLIC ACCIDENT, NOT INVOLVING A VEHICLE

	Check		Check
1. Street or sidewalk accident, non-vehicular		4. Firearms	
2. Buildings and structures		5. Other public accidents	
3. Drowning			

How did accident happen? .....

See reverse side for definitions of terms.

The form above is recommended to Registrars of Vital Statistics to obtain more complete information on accidental deaths than may be had on the Standard Death Certificate. It has been approved for this purpose by a special committee of the Vital Statistics Section, American Public Health Association.

HEALTH RECORD FOR APRIL, 1929

The deathrate among approximately 19,000,000 Metropolitan Industrial policyholders for the month of April was 9.9 per 1,000, or slightly below that for the same month of last year (10.0). The cumulative mortality rate for January to April, inclusive, was 11.1 per 1,000 as compared with 9.8 per 1,000 for the corresponding period of 1928. Nineteen-twenty-nine started badly, when the peak of the recent influenza outbreak was established in January. Since then, however, health conditions have been steadily improving. At the end of January, the excess of the 1929 mortality over that for the same month of 1928 was 42.6 per cent.; at the end of April, this excess had been cut to 13.3 per cent. The higher cumulative deathrate, as compared with 1928, obtains all over the United States and in Canada. West of the Rocky Mountains, the mortality rate for the January-April period showed a rise of 5.6 per cent.; in the rest of the United States, the rate increased 12.9 per cent.; while among the Canadian Industrial policyholders, there was a rise of 19.1 per cent.

All four of the principal epidemic diseases of children recorded lower deathrates in April than in the same month of last year. Declines were also in evidence for influenza, pneumonia, other respiratory diseases, diarrheal complaints and puerperal conditions. Slightly higher mortality rates were registered for typhoid fever, tuberculosis, cancer and cerebral hemorrhage, together with larger increases for diabetes, heart diseases, suicides, homicides and automobile fatalities.

The year-to-date deathrate for tuberculosis, at the end of April, is only a fraction of a point above last year's figure for the like period. The prospect for a new minimal tuberculosis deathrate for 1929 is good. One of the noteworthy developments of the early part of 1929 is a 15.6 per cent. improvement in the deathrate for diphtheria, and it is altogether likely that a new low point in the mortality from this disease will be established this year.

Among the unfavorable items of the health record, during the first third of the year, three are of special interest, namely, the continuance of the upward trend in the cancer mortality rate, the persistence of the high diabetes mortality and the resumption of the rise in automobile fatalities. Deaths from the last named cause showed a small decline last year; but it now seems that this was only a temporarily favorable phase in a situation that is growing worse steadily.

The general deathrate for the large cities of the United States in April was 13.3 per 1,000, as compared with 14.5 for the previous

month and 14.9 for April, 1928. Measles, typhoid fever and poliomyelitis were more prevalent in April than in March, but there were fewer cases of diphtheria, influenza, scarlet fever and smallpox. Comparison with April a year ago shows more cases, this year, of scarlet fever and typhoid fever, with less sickness from diphtheria, influenza, smallpox, measles and poliomyelitis.

Diphtheria cases, as reported from 35 states, declined from 6,123 in March to 5,438 in April; and scarlet fever cases in 45 states dropped from 22,533 in March, to 19,379 in April. Measles cases in 38 states rose from 48,402 in March to 54,911 in April. Reports from nineteen states show less than one-quarter as many cases of influenza in April as were reported during March.

Smallpox, according to reports from forty-six states, was slightly less prevalent in April than in March, the number of cases dropping from 4,295 to 3,798. In Eldorado, a small community in Illinois, ministers of three denominations took an active part in a campaign against smallpox. Their churches were closed against unvaccinated persons as an aid to the local board of health. There was also an outbreak of smallpox in Middleboro, Mass.

Among the recent noteworthy health activities were the following: Persons in New York City who had been victims of poliomyelitis were requested by the New York Academy of Medicine to contribute blood to provide serum for possible treatment of children this summer. Twenty-five adults responded. The health authorities of Cuba have ordered the enforcement of a provision for the compulsory reporting of cancer cases. The state of Nevada was admitted, in March, into the United States Birth and Death Registration Areas.

The following table shows the mortality among the Industrial policyholders for April, 1929; March, 1929, and April, 1928, together with the cumulative rate for the first four months of each year.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF APRIL, 1929; MARCH, 1929, AND OF APRIL, 1928

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*				
	Apr. 1929	Mar. 1929	Apr. 1928	Cumulative Jan. to April	
				1929	1928
TOTAL—ALL CAUSES	994.4	980.5	996.9	1113.7	984.6
Typhoid fever	1.5	1.7	1.4	1.5	1.5
Measles	5.4	3.5	10.2	4.2	6.7
Scarlet fever	4.1	2.8	4.4	3.6	4.0
Whooping cough	5.7	5.1	6.1	6.9	5.4
Diphtheria	9.2	8.7	9.3	10.3	12.2
Influenza	33.1	53.1	35.4	99.8	31.8
Tuberculosis (All forms)	95.5	92.0	94.8	94.4	93.5
Tuberculosis of resp'y system	85.9	80.9	83.8	84.3	82.3
Cancer	76.0	72.3	75.0	76.3	75.7
Diabetes mellitus	19.4	20.6	18.0	22.7	19.2
Cerebral hemorrhage	60.5	57.3	59.5	64.0	60.5
Organic diseases of heart	161.7	154.2	151.8	175.1	154.2
Pneumonia (All forms)	111.2	128.7	140.6	151.2	127.2
Other respiratory diseases	13.3	20.3	19.3	16.0	16.1
Diarrhea and enteritis	12.1	12.8	15.8	13.3	14.7
Bright's disease (Chronic nephritis)	74.5	72.0	74.5	78.1	78.5
Puerperal state	14.0	14.0	15.2	14.7	14.4
Suicides	9.7	8.5	8.2	8.7	8.0
Homicides	6.5	5.4	5.6	6.4	6.1
Other external causes (excluding suicides and homicides)	57.9	50.8	53.4	56.8	55.4
Traumatism by automobiles	17.2	13.3	15.3	15.6	14.6
All other causes	222.9	196.6	198.4	209.7	199.5

*All figures include infants insured under one year of age.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

STATISTICAL BULLETIN,
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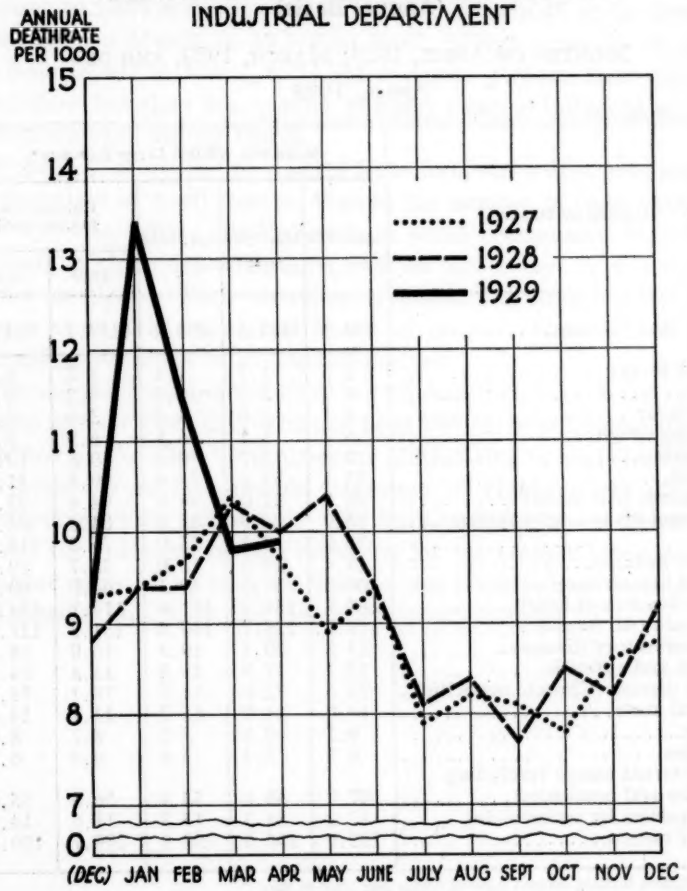
1 Madison Avenue, New York City.

DEATHRATES
FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT



1927	9.4	9.7	10.4	9.7	8.9	9.4	7.9	8.2	8.1	7.8	8.6	8.8
1928	9.4	9.4	10.3	10.0	10.4	9.4	8.1	8.4	7.7	8.5	8.2	9.2
1929	13.4	11.4	9.8	9.9								

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